Claims

1. A virtual private network including an internal secured portion which connects via at least a first gateway and a second gateway to an external portion, the network comprising:

a plurality of workstations including at least one mobile workstation in the external portion;

the first gateway;

the second gateway; and

means for automatically changing the point through which the mobile workstation communicates with the internal portion of the network from the first gateway to the second gateway, in response to movement of the mobile workstation.

2. A network as claimed in claim 1, further comprising transfer means for transferring context information usable by a gateway in communications with the mobile workstation, to the second gateway.

3. A network as claimed in claim 2, wherein the context information includes an identifier of the mobile workstation.

4. A network as claimed in claim 3 wherein the identifier is the home address of the mobile workstation.

5. A network as claimed in claim 2, 3 or 4 wherein the context information includes

material for defining secure communication means by which information is transferable securely between the mobile workstation in the external portion of the network and the internal portion of the network, via the second gateway.

6. A network as claimed in claim 5, wherein the secure communication means is a security association pair between the second gateway and the mobile workstation.

7. A network as claimed in any one of claims 2 to 6, wherein the transfer means is physically separate from the first gateway.

8. A network as claimed in any one of claims 2 to 7, wherein the transfer means additionally transfers information to the mobile workstation for enabling communications between the mobile workstation and the second gateway.

9. A network as claimed in claim 8 wherein the information transferred to the mobile workstation enables secure communication means by which information is transferable securely between the mobile workstation in the external portion of the network and the internal portion of the network, via the second gateway.

10. A network as claimed in claim 9, wherein the secure communication means is a security association pair between the mobile workstation and the second gateway.

11. A network as claimed in claim 8, 9 or 10, wherein the information transferred to the mobile workstation comprises the address of the second gateway.

12. A network as claimed in any one of claims 8 to 11, wherein the information transferred to the mobile workstation is transferred between the first gateway and the mobile workstation using an existing security association between the mobile workstation and the first gateway.

13. A network as claimed in any preceding claim wherein the second gateway comprises one or more databases which are updated to enable the internal portion of the network and the mobile workstation. in the external portion of the network to communicate via the second gateway.

14. A network as claimed in claim 13, wherein the one or more databases are a Security Policy Database and a Security Association Database.

15. A network as claimed in any preceding claim wherein the mobile workstation comprises one or more databases which are updated to enable the internal portion of the network and the mobile workstation in the external portion of the network to communicate via the second gateway.

16. A network as claimed in claim 15, wherein the one or more databases are a Security Policy Database and a Security Association Database.

17. A network as claimed in any preceding claim further comprising location detection means for detecting the location of the mobile workstation and initiating a change in the

point through which the mobile workstation communicates with the internal portion of the network, from the first gateway to a better gateway.

18. A network as claimed in claim 17, wherein the gateway is better because it is closer to the mobile workstation and/or it is optimal for routing existing sessions.

19. A network as claimed in claim 17 or 18, wherein the detection means is responsive to a location identifier received from the mobile workstation.

20 A network as claimed in claim 19, wherein the location identifier is the care-of-address of the mobile workstation.

21. A network as claimed in claim 20, wherein the identifier is received during a mobility binding update.

22. A network as claimed in any one of claims 17 to 21, wherein the location detection means is separate from the first gateway.

23. A network as claimed in claim 22 when dependent upon claim 7, wherein the location detection means and transfer means are housed together.

24. A network as claimed in any preceding claim wherein the first gateway and the second gateway are in distinct physically separated segments of the network.

25. A network as claimed in any preceding claim, wherein the mobile workstation communicates with the internal portion of the network via the first gateway and also via the second gateway simultaneously for a transition period, before communicating via the second gateway only.

26 A network as claimed in any preceding claim wherein the mobile workstation. is involved in a session with a correspondent node.

27. A network as claimed in claim 26, wherein the correspondent node is located in the internal portion of the network and the mobile workstation is located in the external portion of the network.

28. A method of optimizing the route by which information travels between a mobile node in an external portion of a network and a correspondent node in an internal portion of a network, comprising the steps of:

determining when a first serving gateway through which the mobile node communicates with the internal portion of the network, is sub-optimal;

identifying a second gateway; and

transferring the point through which the mobile node communicates with the internal portion of the network from the first serving gateway to the second gateway.

29. A mobile workstation for connecting to an external portion of a network that includes an internal secured portion connected, via a first gateway and a second gateway to the external portion, comprising:

means arranged to receive, via the first secure communication means, an identifier of a second gateway; and

means arranged to change from communicating with the internal portion of the network through the first gateway to communicating via the second gateway.

30. A mobile workstation as claimed in claim 23, further comprising means for using a first secure communication means by which information is transferable securely between the internal portion of the network and the mobile workstation via the first gateway, to receive the identifier of the second gateway;

31. A mobile workstation as claimed in claim 23 or 24, further comprising means for using a second secure communication means to transfer information securely between the internal portion of the network and the mobile workstation via the second gateway;

32. A virtual private network, substantially as hereinbefore described with reference to and/or as shown in Figures 1a, 1b, 1c and 2.

33. A method of optimizing routing in a virtual private network, substantially as hereinbefore described with reference to and/or as shown in Figures 1a, 1b, 1c and 2.

34. Any novel subject matter or combination including novel subject matter disclosed, whether or not within the scope of or relating to the same invention as the preceding claims.

means arranged to receive, via the first secure communication means, an identifier of a second gateway; and

means arranged to change from communicating with the internal portion of the network through the first gateway to communicating via the second gateway.

30. A mobile workstation as claimed in claim 23, further comprising means for using a first secure communication means by which information is transferable securely between the internal portion of the network and the mobile workstation via the first gateway, to receive the identifier of the second gateway;

31. A mobile workstation as claimed in claim 23 or 24, further comprising means for using a second secure communication means to transfer information securely between the internal portion of the network and the mobile workstation via the second gateway;

32. A virtual private network, substantially as hereinbefore described with reference to and/or as shown in Figures 1a, 1b, 1c and 2.

33. A method of optimizing routing in a virtual private network, substantially as hereinbefore described with reference to and/or as shown in Figures 1a, 1b, 1c and 2.

34. Any novel subject matter or combination including novel subject matter disclosed, whether or not within the scope of or relating to the same invention as the preceding claims.